50X1-HUM

CONTROL/
US OFFICIALS ONLY

CLASSIFICATION S-E-C-R-E-T
SECURITY INFORMATION
CENTRAL INTELLIGENCE AGENCY

REPORT

CD NO.

COUNTRY Hungary

DATE OF INFORMATION 1952

50X1-HUM

SUBJECT Economic - Petroleum

DATE DIST. 19 Dec 1952

NO. OF PAGES 6

50X1-HUM

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

50X1-HUM

50X1-HUM

INFORMATION ON BUDAFAPUSZTA AND LOVASZI OIL FIELDS IN HUNGARY

The report presents detailed technical information concerning two oil fields in Hungary: the Budafapuszta and the Lovaszi fields. The report explains the application of Soviet methods and equipment in use in the fields and gives production figures as well as an analysis of the oil products.

A sketch map and diagrams of oil field equipment included in the original document are not reproduced here.

The former Magyar Amerikai Olajipari Reszvenytarsasag (Hungarian - American Oil Company) consists of two fields. The Budafapuszta oil field, popularly known as Lispe, is located in the hilly region of Letenye Juras, in Zala Megye, bordered by the towns of Kiscsehi, Szentadorjan-Lispe, Bazaberettye, and Budafapuszta. In general, the region is about 255 meters above sea level, but is 281 meters above sea level at its highest point. It is 7 kilometers wide from east to west, 2 kilometers wide at its broadest point from north to south, and is bounded on the north by the Valicka Creek and on the south by the Mura River.

The Lovaszi oil field is also in the Letenye Juras of Zala Megye and is bordered by the towns of Csente, Kerkatofalu, Kutfej, and Lovaszi. This region is also hilly, having an average height of 290 meters above sea level, and a maximum height of 317 meters. Located beyond the valley beside Kerka Creek, the oil field extends 9.5 kilometers from east to west, and 4 kilometers at its widest point from north to south.

CONTROL/US OFFICIALS ONLY

CLASSIFICATION S-E-C-R-E-T

STATE	X	NAVY	X	NSRB	DISTRIBUTION												
ARMY	X	AIR	X	FBI	DAPC X												

The two fields are about 15 kilometers apart by air line, and are bisected by the Kerka Creek.

Deep drilling is done according to the rotary system. Drilling equipment consists of a 41.5 meter-high derrick with a 6-8 meter wide base upon which the drill pipes are suspended and hoisted. The block and tackle which hoists the drill pipes consists of a crown block and hook. There are also mud pumps, transmission belt, Cameron turntable, hydraulic stop valve, mud pit, and the driving motors which are 500-horsepower Idealajax steam engines.

The drill pipes are 20-30 meters long when screwed together. They have a 6 5/8 inch outer diameter and an inner diameter of 3 inches. They are made of chrome nickel having a tensile strength of 6,680 kilograms per square centimeter. The steam engine is fueled by two steam boilers which work at a pressure of 20 atmospheres.

The only noticeable change in drilling operations has been an increase in the number of driving motors. The diesel engines of T-34 and other Soviet tanks have been converted for this purpose, and they are also used to drive the Soviet-made mud pumps. However, these converted motors are not adequate for either task. Whenever the drill goes deep, the clutch slips and burns out. While the motor is being repaired, crushed rock begins to settle in the bore so that the mud pump must work harder. Being of poor quality Soviet material, the air chamber is unequal to the strain and frequently cracks, whereby the flow is stopped. Often, it is impossible to hoist the drill pipes out of the bore, in which case the bore has to be abandoned.

After the wells have been drilled to an average depth of 1,400 meters, a string of 6 5/8-inch casings is placed in the bore. Then the annular space between the casing and the wall of the hole is filled with cement which is allowed to set for 36 hours. This is followed by perforation which is achieved by firing 32-64 bullets through the casing to reach the oil layer or by as many charges as required by the oil to reach the gas layer.

After that the well is tubed; mud is replaced by water and pumping continues until the water is forced out. Then, production begins and the oil is piped to storage tanks.

The wells are not all of the same depth nor do they all have the same producing capacity. Some produce 6 cubic meters while others yield as much as 75 cubic meters in 24 hours. It depends largely upon whether the well is a flowing well, a pumper, or a gas drive well.

The average yield is 16 cubic meters, and since 50 of the 150 wells have been made inactive by repair work and for other, only 100-105 wells produce. The Lovaszi field yields a maximum of 1,800 cubic meters (157.5 tons) a day with a loss of around 5 percent. Although new wells are constantly being drilled, the yield declines steadily. A random sampling of the yield of the wells gives the following production data: Wells No 5, 9, and 65 produce from 6-12 cubic meters, while Wells No 70, 75, 76, 77, 98, and 101 produce 18-35 cubic meters.

The size of the nozzle valves depends upon various factors, such as the pressure of the casings and tubing, the degree of seepage, etc. They range in size from 3-12 millimeters and are used according to requirements. Falling pressure in a pipe indicates great seepage and means that a larger nozzle is required; falling pressure in a casing indicates too little seepage and calls for a smaller nozzle.

The ideal ratio of gas to oil is 30 percent gas to 70 percent oil.

The oil drilled at Lovaszi is a thin, golden yellow fluid of very high gasoline content. Lispe oil is black, and highly viscous but contains much gas. Lendvaujfalu oil is extremely thick and dark green. It has an oil residue of approximately 85 percent. Pusztaszentlaszlo oil resembles Lendvaujfalu in makeup and color.

The Lovaszi gasoline refinery is equipped with 29 compressors. They are Tomashen gasoline engines made in Holland. The Lepse refinery has 12 compressors: ten Dutch Tomashens and two Anglo-American Bessemers.

Since production depends directly upon oil yield, it is necessary to cite averages. A daily yield of 480,000-500,000 cubic meters of wet methane gas results in 20-28 cubic meters of gasoline and 10-12 cubic meters of propane-butane gas. The inferior gases are forced back into the wells to be enriched with oil. The gasoline has a specific gravity of 610-620 grams per liter.

Since the oil is now piped away, the Ujudvar storage depot serves simply as an auxiliary depot. The pipelines consist of 9-inch, welded steel pipes, insulated with "Selurit" and laid at a depth of 1-1.5 meters. They run from Lovaszi to Budapest via Bazakerettye, Ujudvar, Balaton-Szentgyorgy, Balatonfenyves, Belatelep, Fonyod, Balatonboglar, Siofok, Kapolnasnyek, and Almasfuzito. Between Fonyod, Balatonboglar, and Siofok, the pipelines are about 500-600 meters from the main road.

The propane-butane gases are bottled and sold by the Denes firm in Nagykanizsa, the Gazertekesito Vallalat (Gas Trading Enterprise). They are used as a motor fuel and for domestic purposes.

All the machinery at the oil fields and refinery is driven by methane gas which is also used as a heating fuel in the neighboring villages of Borosfa, Banokszentgyorgy, Lispe, Bazakerettye, Lasztonya, Varfolde, Lovaszi, and Kutfej. The consumption of so much methane gas naturally has adverse effects on production.

Crude oil from Lovaszi is shipped to Bazakerettye from where the production of both oil fields is piped along the previously described route to the refineries at Almasfuzito. The refined fuel is shipped back to the oil fields by rail.

The oils piped to the refinery from Lovaszi and Budafapuszta have a specific gravity of 875 and 930 grams per liter, respectively.

The composition of the oil is:

Content	Percentage	Specific Gravity (in gr per b) /probably liter/
Light gasoline	20-23	740
Heavy gasoline	25-27	770
Kerosene	27-30	810
Gas oil	20-00 /sic/	810
Fuel oil	3	
Residue	5	

The Lovaszi field produces 1,800-2,000 cubic meters, i.e., 157-160 tons of oil and 500,000-800,000 cubic meters of gas daily.

A total of 150 drillings were made at the Lovaszi field with a total of 207,270 meters of productive drilling.

The Lispe fields have from 10,000 to 12,000 meters more productive drilling because of the depth of the wells and because some drillings [probably of the Lovaszi field] did not strike oil.

Twice a week the production of the Lovaszi wells is pumped to Bazakerettye from where it goes on to the refinery.

According to reliable reports 70 percent of the production belongs to the Soviet Union, 30 percent to Hungary.

Production figures apply equally to both oil fields which means that Budafapuszta and Lovaszi have about the same output.

The output of the oil fields has been declining for the following reasons: When the USSR took over in 1945, it forced production without using regulating valves so that seepage could not keep up with out take. This resulted in so great a lowering of pressure in the casings that the suction created in the take-off pipe forced salt water into the casing. The water settled on the oil, and very little oil came through the column of water. For lack of experts and conscientious work, this fault has remained uncorrected. Many wells have had to be shut down and even more have had to resort to gas or water drive.

Gas drive wells are activated by forcing gas down an input well into an oil stratum which has inadequate pressure, thereby forcing the oil up and out. However, once the oil has been forced through the casing, the gas escapes and is lost. This contributes to the gas shortage in the fields nearly as much as the fact that the neighboring villages use the gas for fuel. Another factor in the production decrease is that for lack of experts no one has dared to reopen the cemented wells.

The gasoline shortage is made still more acute through the fact that the inaccurate output data gathered when some of the wells were repaired in 1945, were made the basis for repairs in 1947. Therefore, wells which nominally produce 47 cubic meters have an actual output of 6-8 cubic meters. Even this is made possible only by use of pumps.

The USSR, of course, still gets the amount of oil agreed upon when the wells were producing abundantly.

The oil is first pumped to the nearest collecting depot from where it goes to the main collecting and storage depot.

These collecting depots appear on the sketch as No 1, 2, 3, 4, 6, 7, and 8. At the main collecting depot, which is No 5, there are motor pumps units which pump the oil to Bazakerettye. The collecting depots have from 4-14 storage tanks, each with a capacity of 60 cubic meters. The tanks are 6-8 meters high, and 2-3 meters in diameter. They are made of 10-millimeter steel plates, and have a 60-centimeter opening at top and bottom. The cap of the bottom opening is compactly secured with a 3/4 inch nut.

Each collecting depot also has separators equipped with orifice meters which measure the gas-oil ratio. The meter readings are recorded on special orifice charts. The charts give the date, the hour, and the number of the well.

Each collecting depot also has a small building which houses the maintenance crew, the fire hoses, and the telephone. In addition, the collecting depots are provided with a 70-centimeter high fire barrier. The tanks and the fire-extinguishing equipment, which consists of "Fotogen" flasks, is situated within the barrier. The tank depot and the building are 50-60 meters apart. The depots are under police surveillance.

The flow of oil from the tank depots to the main collecting station, No 5, is induced either by gravity or by Worthington field pumps. From here it is pumped to Bazakerettye twice a week, or every afternoon if n/ ary.

There are four storage tanks at the Collecting Station No 5, each having a capacity of 1,000 cubic meters. They are made of riveted steel plates, are 6 meters high, and have a diameter of 6-8 meters. A spiral staircase leads to the upper opening. Besides these, there are 12-14 sixty-cubic meter tanks of the type previously described. The main collecting station occupies a territory of 300 by 600 meters. The pump house contains three 120 horsepower gasoline engines each of which drives a 12-stage Mazalon centrifugal pump. These are the pumps which propel the oil and gasoline to Bazakerettye.

A separate pipe, running parallel to the oil and gasoline pipes as far as the Tank Station No 4 carries propane-butane gas to be used as an absorber [solvent] because the Lovaszi gasoline plant has no absorber. The dimensions of the oil, gasoline, and propane-butane pipelines are 9, 4 3/4, and 3 inches, respectively. Their course is sketched on the map [included with original document but not reproduced here].

From the Yugoslav border all the way to the water filter shed at Lovaszi (125, 61, 121, 106) the lines run mainly through woods and along the slopes of the vineyards. Although the wells are not surmounted by derricks, they can be identified by the 20 square meter clearing around them in which there is a cement pit approached by 7-8 steps which lead to the well head. The well head occupies a space 170 by 170 by 170 [sic] meters square. From here the rushing of the oil or gas is sometimes audible.

The gasoline plant covers an area of 600 square meters, lying parallel to and set about 50 meters back from the road. It includes a machine shed which houses 29 compressors. The plant is equipped with 60-cubic-meter horizontal stills. Stills, pumps, boilers, and power plant are surrounded by a wire fence 2 meters high. They are easy to identify because of the smoke from the 18-meter high cooling towers.

Between the gasoline plant and the office are two buildings occupied by the AVH, which house around 60 people. They form the guard for Collecting Station No 5 and the gasoline plant. Another large AVH barracks has been built near the Yugoslav border in the vicinity of Well No 89.

The contaminated oil brought up by spooning is used in making carbon black.

The 150 wells which together constitute the Lovaszi and Budafapuszta oil fields may be classified as follows:

Flowing wells include No 1, 4, 7, 8, 11, 12, 13, 15, 16, 17, 21, 26, 85, 30, 33, 36, 37, 38, 40, 45, 46, 48, 52, 53, 54, 57, 58, 70, 75, 76, 77, 78, 80, 145, 89, 90, 97, 101, 104, 111, 112, 118, 120, 122, 124, 125, 127, 130, 131, 132, 136, and 142.

Exhausted wells include No 2, 14, 20, 25, 43, 64, 69, 98, 105, 129, 148, 149, and 150.

Gas drive wells include No 3, 10, 19, 28, 29, 31, 34, 39, 42, 47, 49, 55, 56, 114, 115, 116, 117, 59, 61, 63, 66, 67, 73, 74, 79, 82, 144, 92, 99, 100, 102, 103, 106, 107, 108, 109, 110, 119, 121, 123, 126, 128, 133, 134, 137, 140, and 141.

Pumpers include No 5, 9, 22, 23, 86, 87, 35, 60, 65, 68, 71, 72, 81, and 93.

Wells cemented over include No 6, 18, 27, 88, 32, 41, 44, 84, and 96.

Input wells include No 50, 51, 62, and 83.

Proposed wells include No 143, 146, 135, 138, 139, and 147.

Water drive wells include No 91, 95, and 113.

In addition No 24 is an air drive well and No 94 is burned out.

- E N D -